

What is claimed is:

1. A method for coding a motion vector comprising the steps of:  
computing two-dimensional prediction error information by using a motion  
5 vector to be coded and the  $n$  ( $n \geq 1$ ) number of neighboring motion vectors;  
selecting prediction error information having the minimum bitrate from the  
computed prediction error information;  
obtaining mode information indicative of a neighboring motion vector  
which has occurred the prediction error information of the minimum bitrate; and  
10 coding the obtained prediction error information of the minimum bitrate  
and the mode information.
2. The method of claim 1, wherein the prediction error information of  
a minimum bitrate is commonly applied to factors 'X' and 'Y'.
- 15 3. The method of claim 1, wherein the prediction error information of  
minimum bitrate includes prediction error information of minimum bitrate applied to  
the factor 'X' and prediction error information of minimum bitrate applied to the  
factor 'Y'.
- 20 4. The method of claim 3, wherein the prediction error information of  
minimum bitrate of the factor 'X' and the factor 'Y' are sequentially linked.
5. The method of claim 1, wherein the mode information is  
25 commonly applied to the factors 'X' and 'Y'.

6. The method of claim 1, wherein the mode information includes mode information of the factor 'X' and mode information of the factor 'Y'.

5 7. The method of claim 1, wherein the mode information of the factor 'X' and the factor 'Y' are sequentially linked.

8. The method of claim 1, wherein the step of obtaining mode information comprises:

10 defining 'n' number of candidate motion vectors by using the prediction error information of minimum bitrate and 'n(n $\geq$ 1)' number of neighboring motion vectors;

selecting an actually effective candidate motion vector from the defined candidate motion vectors; and

15 assigning code information indicative of a candidate motion vector actually used for predicting the minimum bitrate among the selected candidate motion vectors.

9. The method of claim 8, wherein the code information is not  
20 assigned if there is one effective motion vector when 'n' is 3 and 1 bit code is assigned if there are two effective motion vectors.

10. The method of claim 9, wherein the code information is assigned in such a manner that, if there are three effective motion vectors, 1 bit code is  
25 assigned to one candidate motion vector and 2 bit code is assigned to the other

two candidate motion vectors.

11. A method for coding a motion vector comprising the steps of:

computing prediction error information between a motion vector to be

5 coded and the  $n$  ( $n \geq 1$ ) number of neighboring motion vectors;

selecting prediction error information of the minimum bitrate from the  
computed prediction error information;

checking whether factors of 'X' and 'Y' of the obtained prediction error  
information of the minimum bitrate are '0' and coding the prediction error  
10 information of the minimum bitrate; and

coding mode information indicative of a neighboring motion vector which  
has generated the prediction error information of the minimum bitrate.

12. The method of claim 11, wherein the prediction error information  
15 of minimum bitrate is one-dimensional or two-dimensional one.

13. The method of claim 11, wherein the prediction error information  
of minimum bitrate is coded to 1 bit information when a factor 'X' and a factor 'Y'  
are both '0'.

20 14. The method of claim 11, wherein the prediction error information  
of minimum bitrate is coded to 2 bit header information and corresponding  
prediction error information of minimum bitrate, when the factors 'X' and 'Y' are not  
both '0'.

25 15. The method of claim 11, wherein the prediction error information

of minimum bitrate is coded to 3 bit header information and prediction error information of minimum bitrate other than '0', when one of the factors 'X' and 'Y' is not '0'.

5           16.     The method of claim 15, wherein the 3 bit header information indicates prediction error information of minimum bitrate of '0'.

17.     The method of claim 11, wherein the prediction error information of minimum bitrate and the mode information are prediction error information of  
10     minimum bitrate commonly applied to the factors 'X' and 'Y'.

18.     The method of claim 11, wherein the prediction error information of minimum bitrate includes prediction error information of minimum bitrate applied to the factor 'X' and prediction error information of minimum bitrate applied to the  
15     factor 'Y'.

19.     The method of claim 18, wherein the prediction error information of minimum bitrate of the factor 'X' and the factor 'Y' are sequentially linked.

20       20.     The method of claim 11, wherein the step of obtaining mode information comprises:

defining 'n' number of candidate motion vectors by using the prediction error information of minimum bitrate and 'n( $n \geq 1$ )' number of neighboring motion vectors;

25       selecting an actually effective candidate motion vector from the defined

candidate motion vectors; and

assigning code information indicative of a candidate motion vector actually used for predicting the minimum bitrate among the selected candidate motion vectors.